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NOTES ON NORTH AMERICAN MUTILLIDAE II.
SOME NEW SPECIES OF THE
GENUS PHOTOMORPHUS.

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(Continued from the April issue)

The species differs from *imperialioides* sp. n. at once in the unicolorous integument of the body, in the virtually totally orange vestiture of the gaster, in the somewhat smaller ocelli, (0.53 the ocellocular distance; 0.64 in *imperialioides*), in the smaller, less protuberant eyes, with a total head width 1.1 or less the width immediately behind eyes (1.16 in *imperialioides*). The species is extremely close to *imperialioides*, except for the unicolorous integument, and shares with it the mandibular form, the clypeal form, the close, coarse puncturation of the head (especially of the front), and the black pigmentation of antennae, including scapes, and of the legs, including coxae, as well as the similarly carinate and arched mentum.

A further difference appears to occur in the relative size of the eyes, vs. width of ocellocular distance. In *aurifera* the eye-length is merely 1.50 the ocellocular distance (indicating relatively small eyes), while in *imperialioides* it is 1.85–1.9 the ocellocular distance (indicating relatively large eyes, and showing an approach to the related *P. clandestinus*).

Photomorphus (Photomorphina) juanita n. sp.

Male: Length 10 mm. Integument of body nearly uniformly ferruginous, that of head and alitrunk rather deep ferruginous (becoming blackish-red on venter of alitrunk), that of gaster orange-ferruginous; legs and antennae totally fuscous or fusco-castaneous to base, including coxae and scapes; vestiture whitish and suberect or erect, except mesoscutum and bases of tegulae with fuscous, more decumbent hairs, and abdominal terga 5–8 and sterna

6-9 with orange tinted hairs (entirely or in part) : sculpture coarse and close, especially on head and dorsum of alitrunk. Wings rather strongly pictured, hyaline except for a fuscous cloud in region of cross-vein *m* and posterior to marginal cell, in fore-wings.

Head transversely rounded-rectangular, rather short behind the large, black, polished eyes, very coarsely, closely punctured: on front with punctures strongly confluent, especially transversely, thus somewhat transversely rugose-punctate, on the vertex becoming less sharp, slightly or obscurely separated; on genae with coarse but rather shallow, ill-defined, contiguous puncturation; vestiture entirely white; erect or suberect, sparse, moderately long. Head width 2.17 mm. including eyes, 1.92 mm. immediately behind eyes; head length (from interantennal sinus to occipital ridge) 1.47 mm.; length of vertex behind eyes 0.75 mm.; vertex rather short behind eyes, parallel behind eyes for an extremely short distance, then broadly, evenly rounded into the weakly arched and rounded posterior aspect: thus with temples quite poorly developed. Eyes black, rather strongly protuberant, highly polished, 0.78 mm. long; front between them 1.13 mm. (1.45 the eye-length). Ocelli rather large, length 0.29 mm.; ocellocular distance 0.50 mm. (1.72 ocellar length); interocellar distance 0.42 mm.; distance to anterior ocellus 0.19 mm.; ocellar region concolorous with rest of cranium. Clypeus quite moderately depressed, forming a basin with mandibles, obscurely elevated as a vestigial rounded basal tubercle bearing a few setigerous punctulations, anterior to which it is declivous and somewhat concave; anterior margin truncate-retuse medially, with an arched subapical border that is densely setigerously punctate, 0.25 mm. wide; lateral areas, laterad of median truncation narrowly, closely setigerously punctate; clypeus nitid and impunctate elsewhere. Mandibles moderately strongly dilated, the dorsal rims complete and sharp, ending in inner (dorsal) tooth, thus with complete, rather broad, basally coarsely, setigerously punctate external faces; mandibles ventrally with a slight, sharply produced and acute angulate tooth, but scarcely excised beyond (the width before and beyond tooth not differing greatly); basal portion 0.38 mm. long to apex of ventral tooth; width at tooth 0.30 mm.; width at narrowest point just beyond tooth 0.23 mm.; mandibles scarcely dilated beyond excision, remaining subparallel, except that the ventral margin is distally sublamellately produced as a sharp, knife-like ventral, dilated margin (there 0.26 mm. wide); mandibular apex obliquely tridentate. Mentum sharply longitudinally carinate, except anteriorly, the carina blade-like, arched in profile, but not angulate or dentiform. Antennal scrobes with a moderate, but low

and broad tubercle above, with no trace of suprascrobal ridges; scapes fuscous like flagellum, coarsely closely setigerously punctured and with a rather poorly developed longitudinal carinule on distal half of interior face. Pedicel 0.17 mm. long; first flagellar 0.30 mm. long; second flagellar 0.38 mm. long \times 0.20 mm. wide.

Alitrunk deep ferruginous, especially ventrally, closely coarsely sculptured. Pronotum dorsally coarsely, contiguo-confluent punctured, laterally with a few shallow, ill-defined, partially confluent punctures, the intervals and impunctate regions finely, setigerously micropunctate; humeral and lateral epaulets both moderately distinct. Mesoscutum coarsely contiguo-confluently punctured, slightly more coarsely so than pronotum, with notaulices obsolete, distinct only on posterior one-fourth of scutum (circa as long as parapsidal furrows); vestiture subdecumbent, fuscous. Mesopleura coarsely, closely to confluent punctured, on the ventral swollen region with the punctures extremely large, rounded, shallow; anteroventral region nitid and impunctate, except for scattered setigerous punctulations; oblique furrow obsolete, the coarsely sculptured dorsal and ventral regions broadly confluent; limited area above middle coxae nitid and impunctate. Mesosternum armed at anterior border of the swollen, posterior half with a pair of peg-like, prominent, closely approximated processes, separated by a narrowly U-shaped sinus (the arms of the U somewhat connivent); processes almost vertically declivous on all sides, except their external borders, armed apically by a transverse, setigerous crease (thus bidentate in lateral profile), in ventral view slightly but distinctly wider than long and thus somewhat proximodistally compressed, though not strongly transverse. Metapleura nitid, impunctate (except for a few coarse, obscure punctures ventrally), but with scattered microscopic punctulations bearing a decumbent, fine puberulence. Metasternum with a rather high, but narrow bidentate median process. Propodeum with rather deep but quite close-meshed reticulations, except basally, where with a pair of median longitudinal areas formed by coalescence of 4-5 reticulations each; reticulation becoming narrower laterally, the lateral faces coarsely punctate-reticulate, the sculpture not quite extending to anterolateral borders, which are impunctate adjacent to metapleura. Wings nearly hyaline, with dark brown veins and black stigma, the lamina locally clouded in region of vein *m*, and in central part of distal fourth of wing; stigma 0.76 mm. long, marginal cell on costa 1.10 mm. long; R_5 narrowly rectangular-polygonal, 0.90 mm. long. Legs castaneous black, including coxae, with ivory-white calcaria; coxae and trochanters unmodified.

Gaster moderately punctured, the second segment more coarsely so, orange-ferruginous. Petiole rather broad and stout, only slightly constricted distally, subsessile, moderately coarsely, closely (laterally contiguously punctured), the punctures dorsally coarser, slightly separated, the punctures nowhere sharply defined, rather shallow. Tergum two with a restricted central disk highly polished but with scattered, widely separated, shallow, ill-defined, rather coarse setigerous punctures, the puncturation becoming closer but scarcely coarser laterally, and becoming much coarser, contiguo-confluent and rugose basally; lateral felt lines very long, the surrounding region punctate but not punctulate; lateral narrow rims nitid, virtually impunctate and lacking setigerous punctulations. Second sternum similarly, but more coarsely, centrally more closely punctured, the entire basal half with contiguous to confluent, coarse rugose sculpture; felt lines rather short, circa two-fifths those of the tergum in length, the surrounding region closely punctured but not setigerously punctulate. Segment two entirely with white pubescence, but that of tergal disk somewhat yellowish-stained; segments 1-3 white pubescent dorsally and ventrally; terga 4-8 golden-yellow to orange pubescent, the apical margins of terga 2-4 furthermore with an inconspicuous band of decumbent, subplumose hairs. Sternum 2-3 white pubescent; sternum 4 laterally, and sterna 5-9 totally yellowish to golden pubescent. Sterna and terga 3-7 rather closely, but finely punctured, except for narrow basal rims. Pygidium with a broad basal band of close, rather fine, setigerous punctures, bearing a rather thick orange fringe of hairs, the distal three-fifths of segment with a subquadrate pygidial area defined laterally by carinules, the disk dull, shagreened, the apical one-fourth to one-eighth with a fine vestiture of short, decumbent hairs. Hypopygium flat, elongate, rounded-mucronate at apex, the disk with scattered setigerous punctures.

Holotype: McAllen, Texas, July 2, 1938 (R. I. Sailor), in collection of United States National Museum.

Paratype: Brownsville, Texas, June 2, 1932 (E. G. Linsley), in collection of G. E. Bohart.

This species is superficially very similar to *P. aurifera*: sharing with it the combination of deep ferruginous head and alitrunk, and orange gaster, the same essential pubescence pattern (white vestiture, except for fuscous hairs of mesoscutum, and for the orange vestiture, of the distal abdominal segments), the same, peg-like mesosternal processes, and identical, coarse and close puncturation, a sharp, almost blade-like ventral lamella of the distal

portions of the mandibles, and a dull, granulose distal pygidial region. The most obvious difference lies in the mandibles: in *juanita* these are scarcely interrupted ventrally by a small, but sharp tooth, with a slight excision beyond; in *aurifera* there is a very large, rounded basal tooth, beyond which the mandibles are very strongly narrowed. In *juanita*, furthermore, segments 2-4 of the gaster are whitish pubescent, while only segments 5-8 are orange pubescent; in *aurifera* all the terga, including the second, bear orange pubescence. Finally, *juanita* has the wings hyaline, with localized clouds in the region of cross-vein *m* of the forewings, and of the region below the marginal cell—the wings being prominently, if not sharply, pictured; in *aurifera* the wings are nearly uniformly subfuscous, with the cloud in the region of *m* slightly distinct.

More closely related appear to be *P. minor* n. sp. and *P. mexicanella* n. sp., both of which share with *juanita* a carinate-produced mentum, and slightly ventrally armed mandibles. *P. minor* differs at once in the very slight, obsolete sculpture and the pale legs and antennae. *P. mexicanella* also differs in the pale legs and antennae, but also has much smaller ocelli, and a sharply armed clypeal base. The descriptions of these two species bring out other salient differentiating characters.

Photomorphus (Photomorphina) mexicanella n. sp.

Male: Length 6 mm. Extremely similar to *P. juanita* morphologically, but with clypeus distinctly armed basally, and with sculpture merely moderately coarse and moderately close. Orange-testaceous throughout, the antennal flagellum slightly fuscous; legs concolorous but not stramineous; vestiture uniformly white and sparse, except that of mesoscutum and of terga 5-8 and sterna 6-8 more or less fuscous tinged. Wings hyaline.

Head rounded obtrapezoidal, with moderately coarse, round, rather ill-defined, punctures, slightly separated to moderately separated on front, more distant on vertex and genae; head width 1.52 mm.; width immediately behind eyes 1.33 mm.; the vertex not at all parallel behind eyes, broadly and evenly rounded into posterior margin of head, the temples very poorly developed. Eyes rather large and protuberant, grayish, with facets distinct but not individually convex, 0.60 mm. long; front between them 0.83 mm. wide. Ocelli rather small, length 0.19 mm.; ocellocular distance 0.35 mm. (1.79 the ocellar length), interocellar distance 0.28 mm.; distance to anterior ocellus 0.16 mm. Clypeus as in *juanita*, but posteriorly strongly elevated, the elevation surmounted by a median basal, glabrous, strong, somewhat transverse tubercle, anterior to which it is strongly declivous; clypeus slightly concave, scarcely

depressed, forming a slight basin with mandibles, the anterior margins narrowly setigerously, finely punctate, especially on median lobe, where a subapical arched transverse ridge is rather densely hirsute, forming a moderate beard. Mandibles as in *juanita*: ventrally armed with a slight, little protuberant tooth, rather well developed, with complete sharp dorsal rims; basal portion (to apex ventral tooth) 0.30 mm. \times 0.20 mm. wide at tooth; width at incision 0.15 mm. (0.75 width at tooth), the mandibles beyond incision slightly decurved but not or imperceptibly dilated, at apex with a sharp ventral, inferior lamellate carina, distally obliquely tridentate. Mentum with a sharp, tectately produced ventral, longitudinal carina on basal half, nearly flat on distal half. Antennae with distinctly yellowish scapes; flagellum slightly fuscous; pedicel 0.12 mm. long; first flagellar 0.23 mm.; second flagellar 0.29 mm. wide; antennal scrobes with distinct thorn, but with no indication of suprascrobal ridges.

Alitrunk yellow-testaceous. Pronotum rather coarsely punctate with slightly separated, round punctures, the sculpture obsolete, subrugose laterally; epaulets moderately distinct. Mesopleura largely nitid and impunctate: the sculpture confined to narrow dorsal border, where with coarse, contiguous punctures, and to limited area of swollen posteroventral region; entire anterior half, except dorsally, nitid and impunctate (except for a suggestion of microscopic, setigerous punctulations) and with a short but distinct, nitid oblique sulcus: the dorsal and posteroventral sculptured areas thus not confluent; posteroventral swollen area with a limited number of shallow, coarse, impressed, lenticular, round punctures, separated by narrow, distinct intervals; posterior margin, and area above middle coxae nitid and impunctate, except above, where sculpture attains metapleural border. Mesosternum laterally with the coarse, shallow sculpture extending onto it, elsewhere nearly impunctate; at midline, at anterior border of swollen posterior half, with a pair of approximate, peg-like processes, truncate at apex and with a single transverse, setigerous crease, the processes sharply declivous anteriorly and posteriorly, subterete, at best slightly broader than long. Metapleura nitid and impunctate, except for a few ill-defined, obscure punctures at ventral margins, fused indistinguishably with lateral propodeal faces. Propodeum shallowly, regularly, rather moderately reticulate, at base with a pair of elongate median areas about 4 reticulations long; reticulation extending moderately onto the lateral propodeal faces, becoming obscure anteriorly, a distinct strip adjacent to metapleura quite unsculptured, nitid. Legs concolorous

with body, yellowish, the calcars only a little paler. Wings subhyaline, except for the brownish veins and stigma: stigma 0.47 mm. long; marginal cell large, 0.75 mm. along costa; cell R_5 irregularly polygonal-rectangular, obliquely truncate distally, 0.58 mm. long.

Gaster yellow-testaceous throughout, moderately sculptured and very sparsely pubescent. Petiole subnodose, quite short and broad, but discretely, if weakly, constricted distally, laterally with small, obscure, shallow, ill-defined, but rather close puncturation, dorsally and posteriorly nearly impunctate, with a few shallow, vestigial punctures, highly polished on disk, with a few sparse, ill-defined, small, setigerous punctures; basal portion, except at lateral corners, similarly weakly punctured and polished; lateral margins with somewhat coarser and closer, but ill-defined punctures; felt-lines quite elongate. Sternum two with distal half, except laterally, highly polished, with rather distant, but relatively coarse setigerous punctures; basally and laterally with punctures coarser, closer to contiguous, ill-defined, setigerous; felt-lines slightly less than half as long as of terga. Distal segments finely, moderately punctured, the punctures distant to moderately separated, bearing a sparse, short vestiture; apex of tergum two with a few, vestigial, subplumose hairs, otherwise entire body with simple hairs only; vestiture entirely white, except for distal 3 segments, which have it entirely or largely, moderately fuscous tinged. Pygidial tergum with a narrow basal band of moderate, separated, setigerous punctures, narrowed and slightly interrupted medially, bearing a rather sparse vestiture of stiff, fuscous hairs; distal two-thirds forming a distinct, somewhat shagreened-granulose pygidial area, defined by elevated lateral margins, at distal border with a few short, decumbent, inconspicuous setules. Hypopygium flat, elongate, with a few scattered setigerous punctures on disk, the punctures contiguous along apical margin, close laterally.

Holotype: Purissima, Baja California, Mexico, October 1923 (W. M. Mann), in collection of United States National Museum.

This species is clearly allied to *juanita* sp. n. and *minima* sp. n., especially to the latter. It differs from both in the strongly elevated and tuberculate base of the clypeus, and in the fuscous vestiture of the distal abdominal segments. The much less coarsely sculptured and the shallow, impressed, lenticular punctures of the swollen regions of the mesopleura, the nitid oblique mesopleural furrow, as well as the yellowish legs and hyaline wings all separate it adequately from *juanita*. The very highly polished, almost impunctate petiole and disk and base of the second abdominal tergum are also very characteristic, and serve to separate the species from *juanita*.

These characters all serve to ally it to *minima*, in which the body colors are even paler, and the sculpture more reduced, shallow and ill-defined. The shallow, close-meshed reticulation of the propodeum, as well as the strongly tuberculate clypeal base will separate *mexicanella* from *minima*.

P. juanita, *mexicanella* and *minima* form a clearly related trio, agreeing in the peg-like, scarcely proximodistally compressed processes of the mesosternum, the ventrally only slightly armed and excised mandibles, the tectately carinate posterior (basal) half of the mentum, the rather moderate size of the ocelli, the presence of a pair of long basal propodeal areoles, the subsessile to subnodose, slightly distally constricted, closely punctured petiole, and finally, in the shagreened, dull pygidial area. Except for the mandibles, they are clearly related to *P. aurifera* and *imperialioides*.

Phyllaphis fagi L. in Utah: A slide of this aphid species recently was identified and called to my attention by Professor M. A. Palmer. I had collected an abundance of this material from dropping beech foliage present on and beneath a large tree on the L.D.S. (Mormon) temple ground at Logan, Utah on October 10, 1950. The insect injury condition was called to my attention by a gardner, who recognized that the early drop of leaves was due to the extremely heavy population of this aphid. He reported that the same thing had happened in the fall of 1949, when a similar severe aphid infestation existed. The grounds about this temple has trees and shrubs of many kinds which are uncommon to the area.—G. F. KNOWLTON, Logan, Utah.

Wanted: Brief notes from 4 to 30 typed lines to fill such blanks as this and others in this number and other numbers of the Bulletin.